



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5240

D5806-9

Job Sheet 207479

Part No: D5806-9

Job Qty: 4 pcs

Part Name: Spine



Part Weight: 0 lbs

Job Created: 2/26/20

Due Date: 3/27/20

Type: Stock

Note: URF 20-522 DWG 5806 REV.A IPP REV:A NEW ISSUE 20.31.01 JV VRF:DD

Ship Via:

POSITIVE RECALL

EFFECTIVE 2/26/20 AUTH S/R

Status: Not

DATE

Priority: Medium

Job Tracking No:

Created By: Jennifer Renwick

Description:

## Bill of Materials

## Job Routing

| Op No | Operation              | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier      |           | Sign-off |
|-------|------------------------|-------|------------|----------|-----------|---------|--------------------------|-----------|----------|
|       |                        |       |            |          | Setup Hrs | Run Hrs | Workcenter / Supplier    | Lead Time |          |
| 100   | Large Fab - Basket - 1 | 4 pcs | 3/27/20    |          | 0.00      | 0.27    | Large Fab - 1            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 10           |           |          |
|       |                        |       |            |          |           |         | Large Fab - 2            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 3            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 4            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 5            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 6            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 7            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 8            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 9            |           |          |
|       |                        |       |            |          |           |         | Large Fab - 11 (Various) |           |          |
|       |                        |       |            |          |           |         | Large Fab - 12           |           |          |
| 110   | QC 5                   | 4 pcs | 3/27/20    |          | 0.00      | 0.00    | QC 5 - 10                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 12                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 17                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 18                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 19                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 22                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 24                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 3                 |           |          |
|       |                        |       |            |          |           |         | QC 5 - 43                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 49                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 51                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 58                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 68                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 8                 |           |          |
|       |                        |       |            |          |           |         | QC 5 - 50                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 30                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 40                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 61                |           |          |
|       |                        |       |            |          |           |         | QC 5 - 81                |           |          |



Container No: S264201



Part: D5806-9

Job No: 207479

Serial No/Batch: S264201

Revision: REV.A

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
CANADA  
TEL.: 1 813 632-5200  
Email: sales@dartaero.com  
www.dartaerospace.com

Date: 03/17/20

DAS

40

MAR 17 2020 9:59

Plax 3/11/20 3:52 PM Dart.Renwick.Jennifer

120 Packaging 3-1 - Stock - B4B 4 pcs

3/27/20

0.00 0.00

Packaging 3 - 1 - B4B

Packaging 3 - 2 - B4B

Packaging 3 - 3 - B4B

Packaging 3 - 4 - B4B

Packaging 3 - 5 - B4B

Packaging 3 - 6 - B4B

Packaging 3 - 7 - B4B

Packaging 3 - 8 - B4B

Packaging 3 - 9 - B4B

Packaging 3 - 10 - B4B

Packaging 3 - 11 - B4B

Packaging 3 - 12 - B4B

Packaging 3 - 13 - B4B

Packaging 3 - 14 - B4B

Packaging 3 - 15 - B4B

Packaging 3 - 16 - B4B

Packaging 3 - 17 - B4B

Packaging 3 - 18 - B4B

Packaging 3 - 19 - B4B

Packaging 3 - 20 - B4B

Packaging 3 - 21 - B4B

Packaging 3 - 22 - B4B

Packaging 3 - 23 - B4B

Packaging 3 - 24 - B4B

Packaging 3 - 25 - B4B

Packaging 3 - 26 - B4B

Packaging 3 - 27 - B4B

Packaging 3 - 28 - B4B

Packaging 3 - 29 - B4B

Packaging 3 - 30 - B4B

Packaging 3 - 31 - B4B

Packaging 3 - 32 - B4B

Packaging 3 - 33 - B4B

Packaging 3 - 34 - B4B

Packaging 3 - 35 - B4B

Packaging 3 - 36 - B4B

Packaging 3 - 37 - B4B

MAC

130 QC 21 - SA

4 pcs

3/27/20

0.00 0.00

QC 21 - SA - 21

QC 21 - SA - 70

QC 21 - SA - 53

QC

70

53

Part Op 100 - 1- Cut as per dwg 2- Deburr

Descriptions: 110 - QC5- Inspect part completeness to step on W/O

120 - Identify as per dwg &amp; Stock Location: WA 004

130 - QC21- Final Inspection - Work Order Release

MAR 18 2020

## Job BOM

| Part / Item        | Component Name                       | Quantity            | Operation                  | Container |
|--------------------|--------------------------------------|---------------------|----------------------------|-----------|
| M4130NTS0.500W.035 | 4130 Square Tube .500 X .500 X .035W | 6,1600 ft (1.54 ea) | 100-Large Fab - Basket - 1 | 5260577   |

## Job Allocations

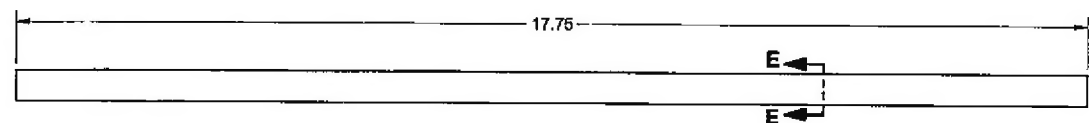
| Operation                  | Component Part     | Required | Inventory | Allocated |
|----------------------------|--------------------|----------|-----------|-----------|
| 100-Large Fab - Basket - 1 | M4130NTS0.500W.035 | 6        | 577       | 0         |

## Part Specifications

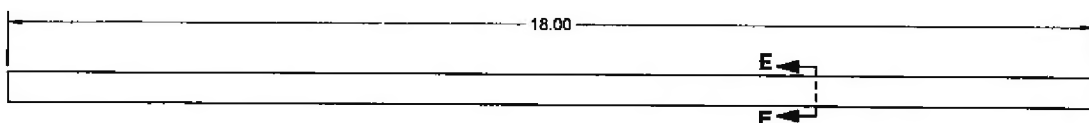
Specifications could not be found.



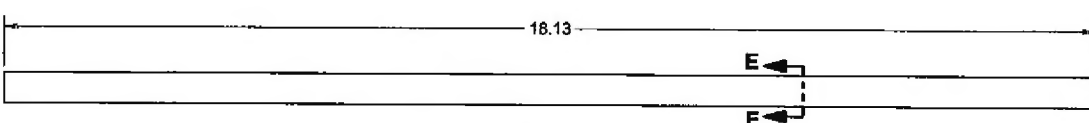
8 7 6 5 4 3 2 1



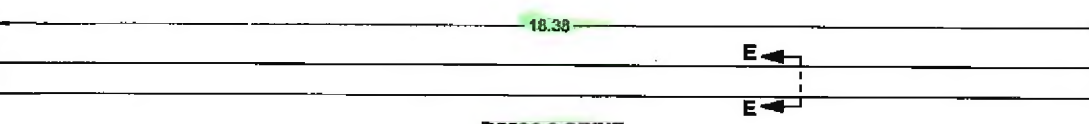
**D5806-3 SPINE**



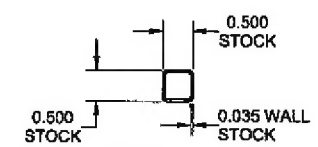
**D5806-5 SPINE**



**D5806-7 SPINE**



**D5806-9 SPINE**



**SECTION E-E**

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 207479

UNDER REVIEW

URF 2020.522 20.02.14 (NO)

**NOTES:**

- 1) MATERIAL: AISI 4130N STEEL SQUARE TUBING, 1/2 X 0.035 WALL  
PER MIL-T-8736 OR AMS 6371/6360/6361/6362/6373/6374  
REF DART SPEC M4130N-TS0.500W.035
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: -3: 0.31 lbs  
-6: 0.32 lbs  
-7: 0.32 lbs  
-9: 0.31 lbs

**RELEASED**  
2020 FEB 18 NO

APPROVED

|            |          |                                                                                                                                                                                              |              |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | ZF       | <b>DART AEROSPACE LTD</b>                                                                                                                                                                    |              |
| DRAWN      | ZF       | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                  |              |
| CHECKED    | KPT      | DRAWING NO.                                                                                                                                                                                  | REV. A       |
| MFG. APPR. | DD       | <b>D5806</b>                                                                                                                                                                                 | SHEET 5 OF 7 |
| APPROVED   | NO       | TITLE                                                                                                                                                                                        | SCALE        |
| DE APPR.   | CP       | <b>MEDIUM BASKET BODY</b>                                                                                                                                                                    | NTS          |
| DATE       | 20.01.17 | <small>COPYRIGHT © 2020 BY DART AEROSPACE LTD<br/>NO REUSE OR REPRODUCTION OF THIS DOCUMENT OR ANY PART THEREOF IS PERMITTED WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |              |

8 7 6 5 4 3 2 1



2/19/2020

## PURCHASE ORDER



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER

## POHB045883



**Supplier:** FAC001-VU  
Factory Steel  
14020 Oakland Ave.  
Detroit, MI 48203 USA  
Phone: 313 883 6300  
Fax: 313 883 4883

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**PO No:** POHB045883

**PO Date:** 2/18/20

**Due Date:** 2/28/20

**Purchase Order**

**Revision:**

**Revision Date:**

FEB 19 2020

**Issued By:** Lavoie, Chantal  
Phone: 613-632-5200 Ext: 242  
Fax: 613-632-1053  
clavoie@dartaero.com

**Via:** Ground

**Print Terms:** Net 30

**Freight Terms:**

**Special Comments:**

| Items        |     |                    |         |                  |                                                                                                                                                                  |        |         |          |                |                       |         |                                 |                |
|--------------|-----|--------------------|---------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------|-----------------------|---------|---------------------------------|----------------|
| Line Item    | Job | Part               | Drawing | Supplier Part No | Description                                                                                                                                                      | Status | Account | Due Date | Order Quantity | Received Quantity     | Balance | Unit Price (USD)                | Extended Price |
| 1            |     | M4130NTS0.500W.035 |         |                  | 4130 Square Tube<br>.500 X .500 X .035W<br>MATERIAL: AISI<br>4130N STEEL<br>TUBING AS PER<br>MIL-T-6738 OR AMS<br>6371/6360/6361/6362<br>6373/6374<br>receive ft | Firmed | -       | 2/28/20  | 600 ft         | 0 ft<br>601 ft<br>603 | 600 ft  | \$6.49/ft<br>DAN<br>MAR 04 2020 | \$3,894.00     |
| Grand Total: |     |                    |         |                  |                                                                                                                                                                  |        |         |          |                |                       |         |                                 | \$3,894.00     |

## Order Notes

## Procurement Quality Clauses

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable). No Raw Metals from China or Soviet Bloc Countries. (DFARS)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program.

A049 supplier awareness.

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 2/19/20 2:52 PM Dart.Lavoie.Chantal

# PACKING LIST

No. 67811

PG 1 OF 1

FACTORY STEEL & METAL SUPPLY  
14020 OAKLAND AVENUE  
DETROIT, MI 48203

(313)883-6300 PHONE  
(313)883-4883 FAX

SOLD TO  
DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7

CUSTOMER PO  
POHBD45883  
CUSTOMER JOB

SALES ORDER  
60752  
ORDER DATE  
02/19/2020

SHIP TO  
DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7

BUYER  
CHANTEL LAVOIE  
Tel (613) 632-3336  
Fax (613) 632-4443

SALES REP  
MICK HALON

SHIP INST  
CALL WHEN READY  
PRO#

TERMS  
NET 30 DAYS

SHIP DATE  
02/21/2020

SHIP VIA  
\*\*\*\*TRUCK\*\*\*\*

RESALE #  
59-2958719

CARRIER  
TRUCK

BLIND Y/N  
N

FOB  
DETROIT

| LINE                             | QUANTITY   | DESCRIPTION                                                                                                                                                                                               | WIDTH                         | LENGTH       | WEIGHT  |
|----------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|---------|
| 1                                | 611.667 FT | <p>PACK IN CARDBOARD TUBE</p> <p>4130N CD SMLSS SQ TUBE 1/2" X .035W MILT-6736</p> <p>Tag M111 Ref # Heat<br/>154506 023914 25537</p> <p>WTRS (CIRCLE) FAX SHIPMENT INVOICE ALL</p> <p>DATE: INITIAL:</p> | 21' / 24' RL                  | 21' / 24' RL | 135.361 |
| <p>TOTAL WT<br/>135 LBS</p>      |            |                                                                                                                                                                                                           | <p>RECEIVED BY: SIGNATURE</p> |              |         |
| <p>RECEIVED BY: PRINTED NAME</p> |            |                                                                                                                                                                                                           | <p>DATE RECEIVED</p>          |              |         |

PL

SO

61151

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130 NT 50.520 W.035 PO / BATCH NO.: P048015803  
 DATE: MAR 04 2020 5260577

MATERIAL CERT REC'D: YES THICKNESS ORDERED: .500 X .500 W.035  
 QUANTITY RECEIVED: 611 FT THICKNESS RECEIVED: .500 X .520 W.035  
 QUANTITY INSPECTED: 611 FT SHEET SIZE ORDERED: —  
 QUANTITY REJECTED: 0 SHEET SIZE RECEIVED: —

| DESCRIPTION                                         | NCR<br>(Check<br>Y/N)                 | COMMENTS   |
|-----------------------------------------------------|---------------------------------------|------------|
| SURFACE DAMAGE                                      | Y <input checked="" type="checkbox"/> |            |
| CORRECT FINISH                                      | <input checked="" type="checkbox"/> N |            |
| CORROSION                                           | Y <input checked="" type="checkbox"/> |            |
| CORRECT GRAIN DIRECTION                             | <input checked="" type="checkbox"/> N |            |
| CORRECT MATERIAL PER N-DRAWING                      | <input checked="" type="checkbox"/> N | MIL-T-6356 |
| CORRECT THICKNESS                                   | <input checked="" type="checkbox"/> N |            |
| PHOTO REQUIRED                                      | Y <input checked="" type="checkbox"/> |            |
| CORRECT REF # TO LINK CERT                          | <input checked="" type="checkbox"/> N | HIT 25537  |
| CORRECT MATERIAL IDENTIFICATION                     | <input checked="" type="checkbox"/> N |            |
| CORRECT M# ON THE MATERIAL                          | <input checked="" type="checkbox"/> N |            |
| DOES THIS MATERIAL REQUIRE<br>ENGINEERING SIGN OFF. | Y <input checked="" type="checkbox"/> |            |
| DOES THIS REQUIRE AN<br>EXTRUSION REPORT            | Y <input checked="" type="checkbox"/> |            |

| CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK.<br>RECORD RESULTS BELOW |     |     |       |       |         |
|------------------------------------------------------------------------------------|-----|-----|-------|-------|---------|
|                                                                                    | HRC | HRB | DUR A | DUR D | WEBSTER |
| TYPE OF MATERIAL                                                                   |     |     |       |       |         |
| SIZE OF TEST SAMPLE                                                                |     |     |       |       |         |
| HARDNESS / DUROMETER READING                                                       |     |     |       |       |         |

testers located in the Quality Office

|                                  |                         |                                   |  |
|----------------------------------|-------------------------|-----------------------------------|--|
| QC IS INSPECTION                 |                         | ENGINEERING SIGNOFF (if required) |  |
| INSPECTED BY: <u>MAR 04 2020</u> | SIGNED OFF BY: <u>—</u> |                                   |  |
| DATE: <u>—</u>                   | DATE: <u>—</u>          |                                   |  |

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

LIME1

M4130NTS0.500W.035

10413045887

**DART**

|                  |                |                                                   |                        |
|------------------|----------------|---------------------------------------------------|------------------------|
| DESIGN<br>PH     | DRAWN BY<br>PH | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br>-H    | APPROVED<br>-H | DRAWING NO.<br>M4130N-TS                          | REV. A<br>SHEET 1 OF 1 |
| DATE<br>05.02.09 |                | TITLE<br>4130N SQUARE TUBING                      | SCALE<br>NTS           |
| A                | 05.02.09       | NEW ISSUE                                         |                        |

PURCHASE MATERIAL:

AISI4130N STEEL SQUARE TUBING PER ONE OF  
THE FOLLOWING SPEC'S: MIL-T-6736, AMS 6371,  
6360, 6361, 6362, 6373 OR 6374

CAS

PART NUMBER: M4130N-TS | A.AAA | W | .ITT |

WHERE A.AAA = WIDTH IN INCHES  
ITT = WALL THICKNESS IN INCHES

EXAMPLE: 0.50" X 0.035" WALL = M4130N-TS0.500W.035

05.02.09

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**PLYMOUTH TUBE CO.**

2200 East 12th Street, Detroit, MI 48203  
Phone: (313) 573-1815 Fax: (313) 572-7171  
TRUST YOUR SOURCE FOR STEEL TUBES & FITTINGS

**PRODUCT CERTIFICATION**

SALES ORDER - LINE / RLS  
179987 - 1 / 0

WORK ORDER 023914 PCS/HEAT 0  
HEAT NUMBER 25537  
MELT SOURCE Totten Steel - Melt/Mfg. USA

**SHIP TO**

Factory Steel & Metal Supply C  
14020 Oakland Avenue  
Detroit, MI 48203  
USA

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------|-------------------|---------------------------|------------------|----------------|-----|-----|------|-----|------|------|------|
| <b>CUSTOMER P.O.</b><br>3999                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>CUSTOMER PART</b><br>SQ-N12035 | <b>QUANTITY</b> | <b>LOADING NO</b> | <b>CERT ID / REV</b><br>1 | <b>CERT DATE</b> |                |     |     |      |     |      |      |      |
| <b>PART DESCRIPTION</b> SHSQ0500035J200<br>***** Square OD *****<br>Side1: 0.5000 Max0.5100 Min:0.4900<br>Side2: 0.5000 Max0.5100 Min:0.4900<br>Wall: 0.0350 Max0.0380 Min:0.0320<br>Length: 48.63±0.39<br>Spec: MIL-T 6736B Seamless Aircraft<br>Grade: 430<br>Anneal: Cond N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                   |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| <b>CERTIFICATION REQUIREMENTS</b><br>FAR BAA (FAR 52.225-1 Buy America Act Supplies), DFARS 252.225-7001 Buy America Act & Bal. of Payments Program FAR TAA (FAR 52.225-6 Trade Agreements Program) and this material is produced in accordance with the requirements of ASTM A-450. The Grain size is determined and reported by the raw material supplier in accordance to ASTM E-112. This raw material was magnetic particle inspected by the raw material supplier in accordance to AMS 2640J and/or ASTM E-1444, and rated as Frequency, and Severity to AMS 2301, latest revision. Yield is determined by using the 0.2% offset method. Additional Specifications - AMS-T 6736B, 6380P & 6371L. Material produced in accordance to ASTM A-519-17. Jominy results: J(5/16")=38 J(8/16")=31. |                                   |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| <b>Chemical Analysis</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Mn                                | P               | S                 | Si                        | Al               | Cr             | Mo  | Ni  | Fe   | Cu  | V    | Ti   | Sn   |
| .30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | .56                               | .008            | .005              | .29                       | .025             | 1.02           | .20 | .13 | .000 | .18 | .009 | .003 | .009 |
| <b>Physical Properties</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| Frag.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Severity                          | Grain Size      |                   |                           |                  |                |     |     |      |     |      |      |      |
| .000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | .000                              | 7               |                   |                           |                  |                |     |     |      |     |      |      |      |
| <b>Mechanical Properties</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                   |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| <b>TEST</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>UNITS</b>                      | <b>WTESTS</b>   | <b>HIGH</b>       | <b>LOW</b>                | <b>AVERAGE</b>   | <b>STD-DEV</b> |     |     |      |     |      |      |      |
| Tensile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Psi                               | 6               | 121110            | 115340                    | 118173           | 2536           |     |     |      |     |      |      |      |
| Yield                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Psi                               | 6               | 115370            | 109700                    | 112525           | 2436           |     |     |      |     |      |      |      |
| Elongation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | %                                 | 6               | 17                | 17                        | 17               | 0              |     |     |      |     |      |      |      |
| Rockwell C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rc                                | 6               | 22                | 22                        | 22               | 0              |     |     |      |     |      |      |      |
| <b>TEST</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>RESULT</b>                     |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| Decarb/OD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Pass                              |                 |                   |                           |                  |                |     |     |      |     |      |      |      |
| Total H/OD decarb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Pass                              |                 |                   |                           |                  |                |     |     |      |     |      |      |      |

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company. Streater in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

*Amie Davis*  
Quality Assurance



**PLYMOUTH TUBE CO.**

3301 East 12th Street, Streator, Illinois 61354  
Phone: (815) 673-7315 Fax: (815) 673-7315

TRUST YOUR SOURCE. ACCEPT NO SUBSTITUTIONS.

**PRODUCT CERTIFICATION**

SALES ORDER - LINE / RLS

172007-1 / 0-

WORK ORDER 02394

PCS/HEAT 0

HEAT NUMBER 25537

MELT SOURCE Timken Steel - Melt/Mfg. USA

**SHIP TO**

Factory Steel & Metal Supply C  
14020 Oakland Avenue  
Detroit, MI 48203  
USA

|                                                                                                                                                                                                                                                                                                                                                                                                    |                            |                   |                    |                   |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------|--------------------|-------------------|-----------------------|
| CUSTOMER P.O.<br>3999                                                                                                                                                                                                                                                                                                                                                                              | CUSTOMER PART<br>SQ-N12035 | QUANTITY          | LOADING NO         | CERT ID / REV     | CERT DATE             |
| PART DESCRIPTION<br>SHSQ0500035J200                                                                                                                                                                                                                                                                                                                                                                |                            |                   |                    |                   |                       |
| <b>Additional Specification(s)</b>                                                                                                                                                                                                                                                                                                                                                                 |                            |                   |                    |                   |                       |
| <b>TEST</b><br>Brinell                                                                                                                                                                                                                                                                                                                                                                             | <b>UNITS</b><br>Brinell    | <b>TESTS</b><br>6 | <b>HIGH</b><br>251 | <b>LOW</b><br>197 | <b>AVERAGE</b><br>225 |
|                                                                                                                                                                                                                                                                                                                                                                                                    |                            |                   |                    |                   | <b>STD-DEV</b><br>27  |
| <p>This test report data is for the heat Chemistry Listed above.</p> <p>The material in this test report is:</p> <ol style="list-style-type: none"> <li>1) Drawn in the USA</li> <li>2) Free from Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), and Mercury contamination.</li> <li>3) NAFTA compliant.</li> </ol> <p style="text-align: right;">End of Certification</p> |                            |                   |                    |                   |                       |

JAS  
9-29

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

*Janice Baross*  
Quality Assurance

Entered: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. \_\_\_\_\_

Route update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                        |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------|--|
| Job: _____<br><br>Part No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/> | <b>DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/> </div> <div>           Eng. (Non-AW) <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Water Jet <input type="checkbox"/><br/>           Supplier Quality <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                        |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sequence #:                                                                                                                       | QTY Affected :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | MRB (QSI042)           |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                   | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | Completed By           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Lead hand / Supervisor |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                        |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                        |  |
| <b>Root Cause</b><br><br><div style="display: flex; flex-direction: column;"> <div>Operator <input type="checkbox"/></div> <div>Manufacturing Process <input type="checkbox"/></div> <div>Equip/Tooling <input type="checkbox"/></div> <div>Handling/Preservation <input type="checkbox"/></div> <div>Material <input type="checkbox"/></div> <div>Product Improvement <input type="checkbox"/></div> <div>Process Improvement <input type="checkbox"/></div> <div>Human Factors <input type="checkbox"/></div> </div> |                                                                                                                                   | <b>FAULT CATEGORY</b><br><br><div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Pressure/Forced<br/> <input type="checkbox"/> Bending<br/> <input type="checkbox"/> Crushing<br/> <input type="checkbox"/> Cracks<br/> <input type="checkbox"/> Crimp/Kink/Ripple/Wave/Twist<br/> <input type="checkbox"/> Marks/Chatter<br/> <input type="checkbox"/> Mislabeled         </div> <div style="width: 50%;"> <input type="checkbox"/> Contamination<br/> <input type="checkbox"/> Misaligned/off center<br/> <input type="checkbox"/> BOM/Route<br/> <input type="checkbox"/> Broken/Damage/Defect<br/> <input type="checkbox"/> Incomplete/Unclear Instructions<br/> <input type="checkbox"/> Drill Holes<br/> <input type="checkbox"/> Fit/Function         </div> <div style="width: 50%;"> <input type="checkbox"/> Power Loss/Surge<br/> <input type="checkbox"/> Folio/Program<br/> <input type="checkbox"/> Grain Direction<br/> <input type="checkbox"/> Weld<br/> <input type="checkbox"/> Wrong Stock Pulled<br/> <input type="checkbox"/> Out of Sequence<br/> <input type="checkbox"/> Off-set/Set-up         </div> <div style="width: 50%;"> <input type="checkbox"/> Positioned Wrong<br/> <input type="checkbox"/> Outside Tolerance<br/> <input type="checkbox"/> Drawing<br/> <input type="checkbox"/> Finish<br/> <input type="checkbox"/> Part Lost/Missing<br/> <input type="checkbox"/> Misread         </div> </div> |  |                        |  |
| Other/Details:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                        |  |